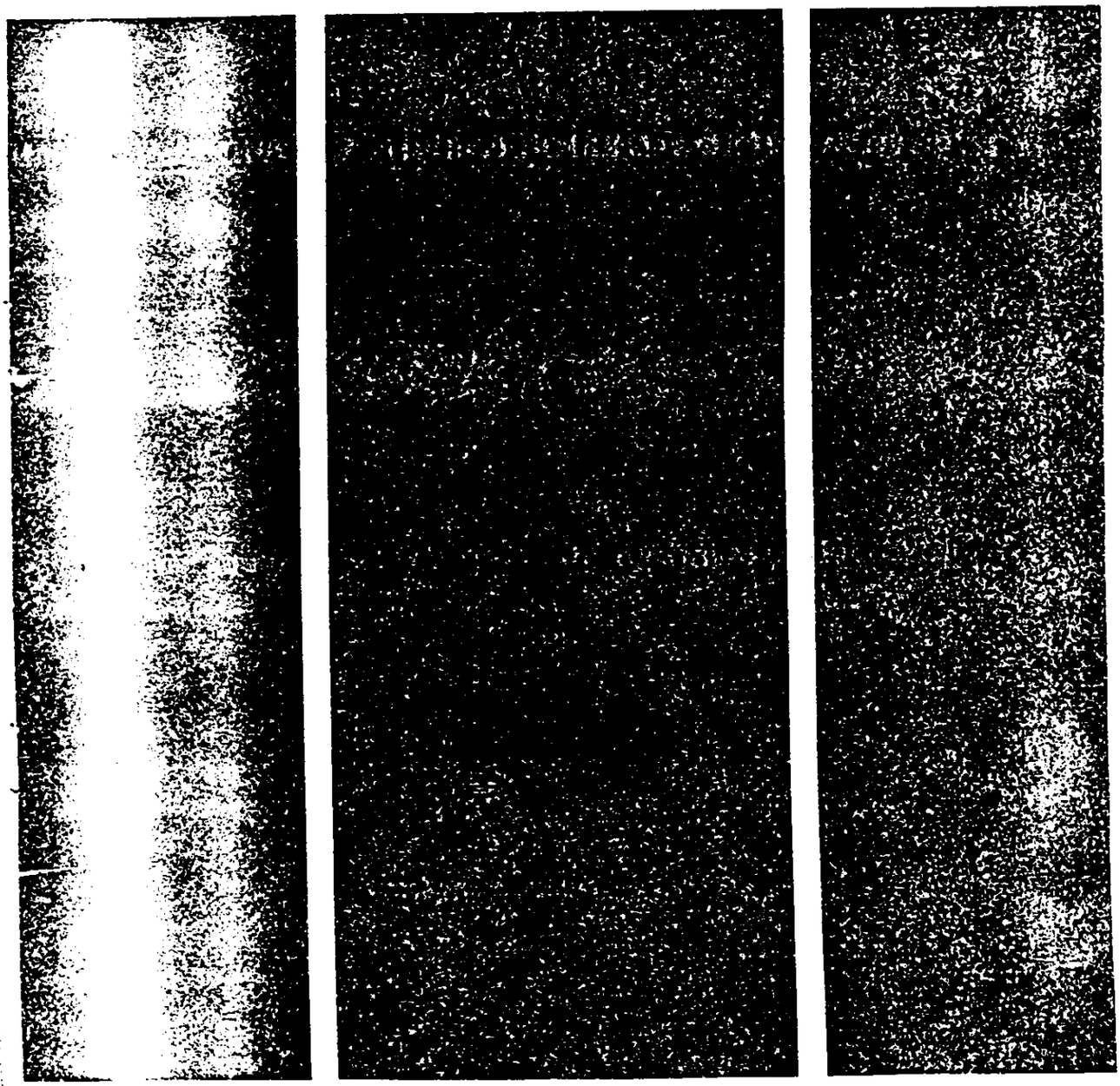
INFORMATION STORAGE AND RETRIEVAL

USER MANUAL



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SECTION I.

INTRODUCTION

In November 1966, INTERNATIONAL INFORMATION INCORPORATED (3i) was retained by Covington & Burling to develop a LEGAL INFORMATION STORAGE AND RETRIEVAL SYSTEM (IS&R SYSTEM, or the SYSTEM) to provide rapid access to legally significant biomedical literature and other legal materials in the area of smoking and health. Working in conjunction with tobacco industry attorneys, 3i has now developed such a computerized System.

Other types of documentary materials for the System, including unpublished legal memoranda, Congressional hearings, responses to previous search requests, articles from the lay press, and other legal materials may be added to the system in the future, as directed.

This USER MANUAL is designed to familiarize the User with the general characteristics and scope of the System. It also provides the User with a detailed set of illustrated instructions as to how the System should be used in practice, including how questions are formulated and put into computer-ready form.

SECTION II. GENERAL DESCRIPTION OF THE SYSTEM

2.1 DOCUMENT SELECTION

The documents actually selected for entry into the IS&R System consist of articles from the biomedical literature which have legal significance to questions of smoking and health and such other documentary materials pertinent to this field as are designated by tobacco industry attorneys through Covington & Burling.

As of May 29, 1967, most of the approximately 5000 documents in the System were derived from specific biomedical bibliographies, such as the Public Health Service's Supplemental Bibliography on Smoking and Health, the bibliography of the National Clearinghouse for Smoking and Health, the Medlars bibliography and the Council for Tobacco Research's Current Digest. Most of this literature was published during the period from January 1963 to December 1966.

Scanning of current biomedical literature has also been proceeding since December, 1966. The material being scanned consists of approximately 3800 publications which are received by the medical libraries at 31 and at the College of Physicians in Philadelphia. Documents have been selected from this literature using provisional selection guidelines. During this period, the document selection guidelines have been extensively refined and re-formulated by tobacco industry lawyers. They are set out in their most recent form in the SCOPE OF COVERAGE, attached hereto as Appendix

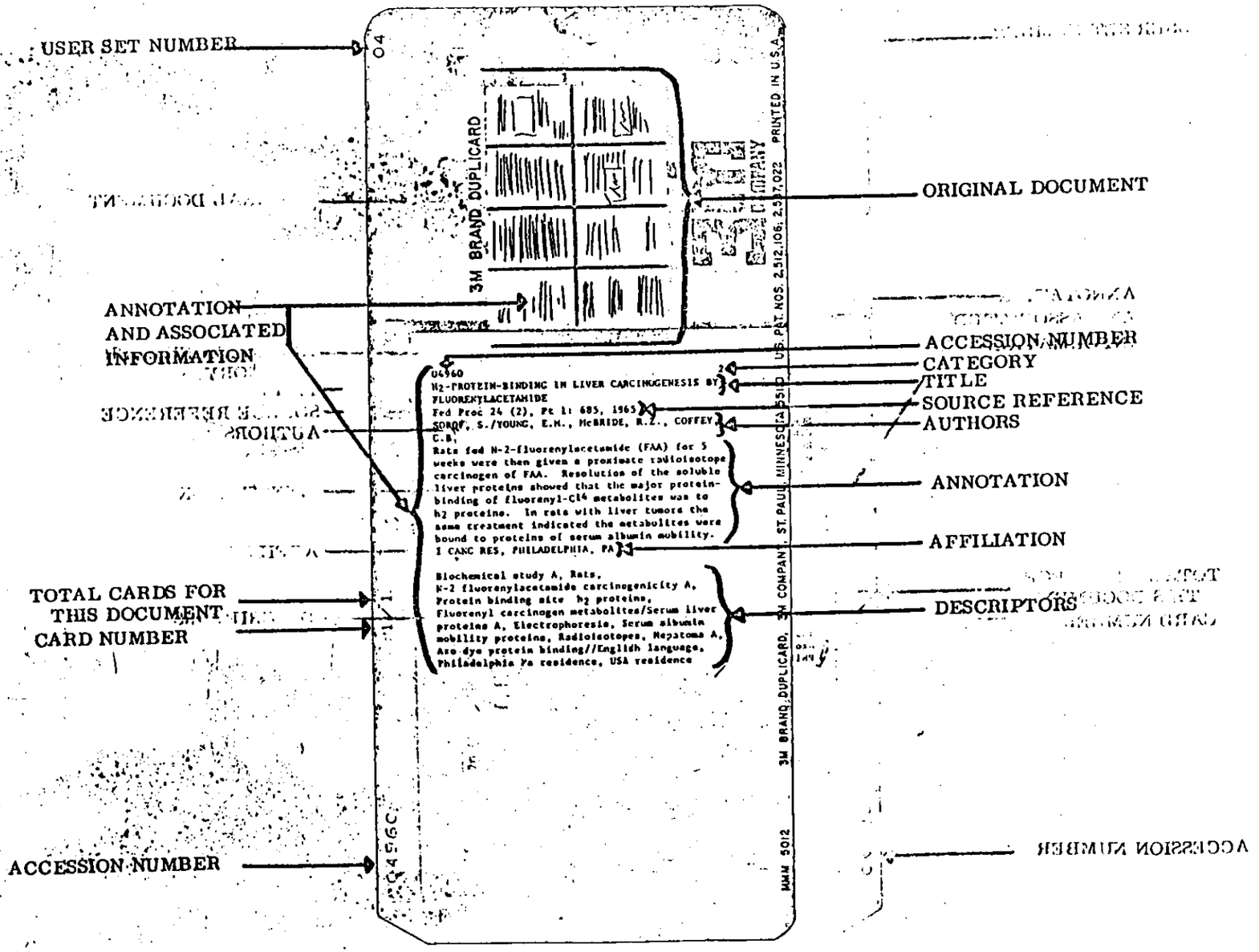
2.2 APERTURE CARDS

The complete text of each document selected and put into the System is reproduced onto one or more APERTURE CARDS. Aperture Cards are punch-cards containing a "window" of microfilm on which the text of a document has been photocopied. (See Figure 1). The microfilm window for the aperture cards presently being used has room for copying 8 pages of a normal sized document. Thus, if the document is longer than 8 pages, more than one Aperture Card is used to reproduce it.

When a user is referred by the System to a particular document, the user can view the complete text of the document by taking the appropriate Aperture Card and viewing it in a microfilm reader or reader-printer.

Each document in the System has been assigned a unique number, called an ACCESSION NUMBER. The Accession Number is both printed and punched onto each Aperture Card. Thus Aperture Cards can be either manually or machine sorted. Also reproduced on the face of each Aperture Card is the following information, corresponding to the document reproduced on the microfilm window: Author, author's Affiliation, Title, Source (name of Journal, date and page number), the Annotation (a 50-100 word summary of the article prepared by 3i) and the Descriptors which are words or groups of words chosen to identify or characterize the contents or concepts of a document and are used to index the document. Figure 1 also shows where each of these items of information appears on the Aperture Card.

A complete set of Aperture cards has been distributed to each user of the System. Each set will be continually updated. A Xeroxed copy of each doeument in the System is also kept on file at 3i.



APERTURE CARD

2.3 THE COMPUTER

The link between the user asking a question and the documents reproduced on the Aperture Cards is the IBM 360-Model 40 computer. It provides a quick access to documents that have been stored in the System.

SEARCH TERMS such as Author's names, Affiliations, Journal names, and Descriptors are stored in the computer with Accession Numbers that relate to specific documents on Aperture Cards. Searching is accomplished by asking for a specific Search Term or combination of terms. The answer is a list of Accession Numbers which have been stored with the Search Terms in the computer.

SECTION III. GENERAL CAPABILITIES OF THE SYSTEM

The IS&R System developed by 3i is designed to provide immediate access to documents which may be helpful either in answering a specific question or in filling a need for general information about a problem area. Searches can be either highly specific and limited, or highly complex and extensive. Each element of information stored in the computer is by definition a search term. All such Search Terms are listed in Figure 2, Column 2, on page 3-4. Any combination of Search Terms can be used to formulate questions and to retrieve pertinent documents.

For example, a user may want to retrieve a particular document which he knows is in the System but for which he does not know the Accession Number. A simple search by Author, Journal, with or without subject Descriptors, should retrieve the document. A slight broadening of the search would then produce similar documents, e.g., all those by the same Author or authors, all those from a particular institution (author's Affiliation), or all those published in the same Journal or a group of journals. Categories and Year of publication are also Search Terms, but it should be realized that there are a very large number documents listed under any one of these items of information.

Descriptors can be used to retrieve documents relating to a specific subject, no

matter how broad or narrow, and can be used in all possible combinations in order to specify the contents of the desired document as exactly as one might wish. It would be possible, for example, to obtain a list of all the Accession Numbers dealing in any way with cigarette smoking, and it would be equally possible to obtain the specific accession numbers of Russian-language papers about carbon monoxide poisoning in construction workers. It is also possible, by the weighting technique, to exclude certain types of documents; this is discussed in detail in Section IV of this manual.

3.1 INDEXING THE SELECTED DOCUMENTS

Generally speaking, the IS&R System operates as follows: Each document selected for inclusion in the System is indexed by 3i in a number of ways, which are summarized in Figure 2 on page 3-4.

First of all, each article is indexed by the normal bibliographic reference information: by the name of the senior Author, by the means of all other listed authors, and by the names of all other authors who are given credit in the article for contributing to the work. These names are always put in the System last name first followed by initials. The article is also indexed by the name of the institutional Affiliation of the primary author and of the secondary authors. These institutional names are written out using standard abbreviations.

Similarly, the article is indexed by the name of the Journal in which it appeared, again using standard abbreviations. The article is also indexed by the Year of publication. It is also indexed according to which of the general subject matter Categories it falls into as set forth in 3i's memorandum of April 24, 1967 (attached hereto as Appendix C). There are nine subject Categories, and each article may fall into one or more of them.

It should be noted that the title of the article and the complete source of the article (i.e., the volume number of the journal in which it appeared and the page number of that volume on which it begins) are not Search Terms though they do appear on the face of the Aperture Card.

Finally, each article is extensively indexed by key words called DESCRIPTORS which are chosen to reflect the substance of the article. A large number of such

Descriptors have been used on each document in order to index as many features of the study that might be of legal significance as possible. This means that each article has an average of 50 Descriptors, and a total of 20,000-30,000 Descriptors have already been used as Descriptors in the process of indexing the subject matter of the first 5,000 or so documents going into the System.

Concise definitions of special terminology developed for use as Descriptor words and components of Descriptor phases are set out in the attached 3i memorandum dated April 25, 1967, and attached hereto as Appendix D. These definitions and descriptorizing components must be carefully studied by each user. Merely for purposes of illustration, it might be pointed out that each article is given a Descriptor to reflect what kind of a study is reported on (autopsy, biochemical, cytology, double blind, etc.), Negroes, mothers, etc.), various kinds of etiological factors (age, climate, cultural, economic, ethic, genetic, physiological, etc.), concessions beneficial affects, helpful information, smoking amounts, geographical sites, professions, grantors and dose responses.

In particular, it should be especially noted that each article is carefully indexed to reflect the author's assertions of causation and association between any form of tobacco use and any disease. Again, the conventions followed in assigning the various degrees of association or causation to a particular statement by the author of the article is summarized in the attached Appendix D.

Furthermore, because so many Descriptors have been used in indexing some of the articles in the System, it has been necessary to follow certain conventions in placing the Descriptors into one of four different Classes: Primary, Secondary, Tertiary and Quaternary. A particular Descriptor will be assigned to one of these four Classes in accordance with conventions developed by 3i and tobacco industry attorneys and concisely stated in 3i's memorandum dated April 25, 1967, and attached as Appendix E. Each user should study these definitions so that they thoroughly understand which Classes of Descriptors are assigned to the various facets of the substance of the article.

Generally speaking, the Primary Descriptors reflect the nature and scope of the documents. The Secondary Descriptors are chosen to reflect fully the author's methods, results, opinions, concessions, conclusions, their beneficial effects and helpful information.

Causation generally appears as a Secondary Descriptor.

Tertiary Descriptors are chosen to index physical effects and chemical observations in relation to tobacco and non-tobacco use.

Quaternary Descriptors reflect a number of special items such as the country of residence of the author, the language of original publication, whether the document was originally presented at a scientific meeting or conference, and various geographical references.

These, then, constitute the many different ways in which each article is indexed for later retrieval. All Search Terms are stored in the computer, while the text of the article is not. Only the users and 3i will maintain copies of the actual text of the articles. The IS&R System will work, then, by scanning at tremendous speeds all of the Search Terms used to reflect the substance of all the articles in the System and printout on request a number citation to all those which deal with subject matter of interest to a user.

All the different kinds of index information extracted by 3i from a document are shown in Figure 2. This chart also shows where the various types of index information are entered, i.e., in the computer as Search Terms (Column 2), on the Aperture Cards (Column 3), or in both (Columns 2 and 3).

FIGURE 2

Column 1 TYPE OF INFORMATION	Column 2 COMPUTER (Search Terms)	Column 3 APERTURE CARDS
AUTHORS	X	X
AFFILIATIONS	X	X
JOURNAL NAME	X	
JOURNAL NAME WITH VOLUME PAGE & YEAR		X
YEAR OF PUBLICATION	X	X
CATEGORY	X	X
DESCRIPTORS	X	X
TITLE OF DOCUMENT		X
ANNOTATION		X
COMPLETE ORIGINAL TEXT		X

SECTION IV. HOW TO FORMULATE THE QUESTION

4.1 INTRODUCTION

To use the IS&R System, a user will have to analyze his need in terms of specific search questions that could be asked. The best approach to this is probably to make a brief list of the kinds of information that would help to solve the problem, and then rework this list, still in natural non-technical language, in the form of requests for specific types of documents that might be in the System. For example, let us suppose that John Doe has just read into the Congressional Record a new article by Wynder reporting that topical application of tobacco tars ("painting") produced skin cancers on animals, on the basis of which Mr. Doe proposes an anti-smoking campaign. The kinds of information that might be useful in answering this proposal would no doubt include:

1. concessions by Wynder about this or similar work
2. articles questioning the validity of animal skin painting experiments and their extrapolation to humans
3. articles about anti-smoking campaigns
4. quotations from previous speeches by John Doe, or by prominent public figures speaking about similar topics.

This list could then be reworked in terms of search requests, some of which might include:

1. all articles by Wynder for the period 1960-66
2. all articles by Wynder which are also indexed by the term "concession"
3. all documents containing "helpful information" on animal skin painting experiments
4. all documents authored by John Doe dealing with anti-smoking campaigns.

With the list our questions now developed, the predesigned check list which is Appendix A should always be referred to in order to make sure all areas of search information are covered.

So now we have a list of questions, or "search requests". Before pursuing one of these hypothetical requests further and seeing how it is transformed into Search Terms for computerized information retrieval, we should take a brief detour and discuss:

4.2 OUTLINING THE GOALS AND SCOPE OF THE SEARCH

It will often be necessary, at this point, to make some hard decisions as to the scope of your intended search and possible limitations which you may want to impose. In the case of a search by authors, this is unlikely to be much of a problem: not even a Wynder has published so many articles that they cannot be evaluated manually once they've been retrieved. In any event it's quite easy to add a few broad subject-matter Descriptors as Search Terms which, when used together with the author's name, will produce exactly what's wanted.

In the case of a subject-oriented search, however, you should ask yourself consciously just what the goal of the search should be. Do you really want an exhaustive bibliography of all the relevant documents in the System, no matter how pertinent? Or would it really be sufficient to have just one quotable article, or a few of the "best" articles? The answers to these questions, will determine how many and which Search Terms will be used, which Classes will be searched, the Weight and Thresholds, and other limitations on the scope. A flood of semi-relevant documents is time-consuming and may not be desirable.

It may sometimes be possible, for example, to limit the search in terms of the author's Affiliation, the men and women who worked with him, the Years of publication, or the Journals in which valuable articles would have been published. All of these are Search Terms can be used just like the subject-matter Descriptors. (Figure 2, Page 3-4)

More frequently, it will be appropriate to hold down the number of documents retrieved by using the language or country of origin of the document. If you want only English-language articles from the USA, for example, then "English language" and "USA residence" should be used as Search Terms. If you are particularly interested in a

review article on the subject, and if this would probably suffice, then use "Review" as a Search Term; on the other hand, if you want to exclude reviews and retrieve only original work, then use the same Descriptor with a high negative Weight.

4.3 CONNECTING NATURAL LANGUAGE TO THE LANGUAGE OF THE SYSTEM

In order to guide the user painlessly from the natural language of his original question to the Descriptors which must be used as Search Terms, he will be provided with Search Forms. It should be remembered, in this connection, that only a precise match between the Search Term and the Descriptor stored in the computer will cause a document to be retrieved. It is often necessary, as a result, to use a "shotgun" approach to avoid missing relevant documents that may have been indexed in slightly different way.

After writing down the question or purpose of the search in natural language, try to think of related terms, synonyms, broader or narrower concepts, etc. which might have been used to describe pertinent documents; the ability to write down Search Terms acceptable at this stage will, of course, come only with practice.

For example, some Search Terms which might come to mind in connection with the question "Documents containing helpful information on the question of animal skin painting experiments" (a subsection of the question described on page 4-1) are:

HI Concession Nonassociation Causation 2 or 3	these derive from the concept of "helpful information" as stated in the question and as indexed in the system
Animal experiments Skin painting A Mice Rats	these derive from the concept of "animal skin painting experiments"
Papilloma Skin cancer Epidermis cancer Squamous cell carcinoma	these are derived by thinking of what is normally produced and reported in skin painting experiments
Tobacco tar Cigarette tar Benzpyrene	these are the substances normally applied in such experiments

4.4 AUTHORITY LISTS

In order to facilitate retrieval of documents from the System, each user will be supplied with an Authority List, see Appendix G produced by computer, which shows all Descriptors that have been used to index any document in the System. This list will be up-dated from time to time and will be supplemented in due course by a Thesaurus, in which these Descriptors will be permuted (alphabetized under each component word in the Descriptor) and inter-related by means of cross references. (see Appendix G).

Special Authority Lists will also be supplied for the Authors, Affiliations, and Journal titles represented in the system, since the exact abbreviation used in the System must also be used in formulating questions. (see Appendix H).

To continue our search example, the next step will be to turn to the Thesaurus or Authority List and, using the set of Descriptors you've developed above, look up the interested in; simply write them down exactly as they are found. The Descriptors must be recorded exactly as they appear in the authority list including all spacing and punctuation. In the example remember that we are interested in "animal experiments", so that most of the Search Terms will be followed by the "A"; a partial listing might be:

ANIMAL EXPERIMENTS HI
ANIMAL CONCESSION
ANIMAL STUDIES
CANCER TOBACCO TAR CAUSATION 3A
CIGARETTE TAR FRACTION COCARCINOGENICITY A
EPIDERMIS CARCINOMA TOBACCO TAR CAUSATION 1A
SKIN PAINTING
SKIN CANCER TOBACCO TAR CAUSATION 3A
SKIN CARCINOMA TOBACCO TAR CAUSATION 2A
SKIN PAPILLOMA TOBACCO CAUSATION 1A
SKIN CARCINOMA A
SKIN TUMORIGENESIS
SQUAMOUS CELL CARCINOMA TOBACCO TAR CAUSATION 1A
SQUAMOUS METASPLASIA REVERSIBILITY A
TOBACCO TAR CARCINOGEN CONTENT CONCESSION

TOBACCO TAR CARCINOGENICITY CONCESSION
TOBACCO CARCINOGENICITY CONCESSION
TOBACCO TAR NONCARCINOGENICITY A HI
TOBACCO TAR PAINTING A
TOBACCO TAR NEGATIVE DOSE RESPONSE A
TOBACCO TAR COCARCINOGENICITY A

4.5 CHOICE OF SEARCH CLASSES

The decision as to which of the possible Classes to search for any given Search Term has to be made in relation to two basic factors:

* an understanding of the definitions of the various Classes (see Appendix E)
* the decisions made earlier regarding the scope and goals of the search.

In the case of Accession Numbers (N), Categories (C), Years (Y), and Journals (J), there is only one class so no decision need be made.

4.5.1 Authors

In the case of Authors (A), we have three Classes (1st = primary or senior author; 2nd Class = secondary authors; and 3rd Class = collaboratory authors, or those who contributed in some way to the work without being listed as authors). An Author's name can thus be searched in Classes 1, 2, and/or 3.

4.5.2 Affiliations

The Affiliations (F) are divided into two classes, corresponding to the primary and secondary Authors.

4.5.3. Descriptors

With regard to Descriptors (D), there are four defined Classes. Any or all of all may be searched for a Descriptor. You would usually search Classes 1 and 2 (Primary,and Secondary Descriptors), or possibly even just Class 1, to obtain the major documents indexed by a fairly general Descriptor, while you would search all four Classes to obtain a comprehensive screen of the System for a more specific or more highly precoordinated Descriptor. Again, this choice will depend on how many documents you really want to retrieve.

It should also be remembered, of course, that certain special types of Descriptors appear only in a particular Class. For example, all descriptors referring to the language of publication or the residence of the authors always appear in the 4th Class.

In the example of the skin painting problem discussed earlier, you would probably want to search all four Classes with the first 10 Descriptors, since these are rather specific terms which might be used in Class 3, for example, to refer to pertinent elements of the author's discussion and conclusions. It might be logical, of course, to search only Classes 1-3 and ignore Class 4, but that also would actually make very little difference in the number of documents retrieved.

4.6 WEIGHTING AND THRESHOLDS

It is only by the assignment of a proper collection of relative WEIGHTS, in relation to each other and to the THRESHOLD, that you can be certain of retrieving most or all of the pertinent documents without being flooded by Accession Numbers, which were indexed only by one or two of your less important Search Terms. The Weight assigned to a Search Term, again in relation to the Threshold can be thought of as a rough measure of your interest in retrieving most or all of the documents indexed by that Descriptor

The Threshold which should be set only after all the Weights have been assigned, is the number (from 0 to 127) specified by the user as the minimum sum of Weights, sufficient to retrieve. Each time a match is found between a Search Term and a Descriptor, the Weight assigned by the user to that term is added to the sum being compiled for the document. After the whole search is complete, the sum for each document is compared with the Threshold, and those documents whose sums are equal to or greater than the Threshold are printed out by Accession Number. In this System, if no Threshold is specified, the computer will automatically use a Threshold of 0, which would mean that any document indexed by any of the Search Terms would be reported.

4.6.1 Boolean Weighting

The Weights can be assigned to the Search Terms according to one of two basic systems: the so-called "boolean" system and the "relevance" system. In the "boolean" approach, we are dealing essentially with three types of searches:

1. the simple "or" search described by the statement A or B or C...; this is achieved by weighting each Search Term 1 and setting the Threshold at 1, then the presence of any of the Terms causes retrieval:

2. the simple "and" search described by the statement A and B and C....; this is achieved by weighting each Term 1 and setting the threshold equal to the sum of the weights, so that all the Terms have to be present to cause retrieval;

3. the simple "and" search described by the statement A and B and C... and (D or E or F...); this is achieved by weighting each "or" term (D, E, F) 1, each "and" term (A, B, C) the sum of the "or" weights plus 1, and setting the Threshold equal to the sum of the "and" Weights plus 1.

i.e. D = 1
E = 1
F = 1
A = 4
B = 4
C = 4
Threshold = 5

4.6.2 Relevance Weighting

In the "relevance" system, the Search Terms are ranked in order of importance or interest ("relevance") to the user and are then assigned Weights from +9 to -9. The negative Weights are used to indicate interest in the absence of the Search Terms. The Threshold must then be calculated to correspond to a good match with the user's needs, considering the fact that the negative Weights may cancel out some of the positive Weights.

In actual practice, the usual first step is to look at your list of Descriptors and decide whether they are all of equal interest or whether some of them are obviously more important or meaningful than others. If there are any Search Terms that are so meaningful that they should create retrieval by themselves, give them relatively high weights equal to the Threshold. If there are other Search Terms (such as an author's name or "English language") which have to be present but which should not be sufficient, by themselves, to create retrieval, give them high Weights but set the Threshold a little higher than their sum, so that it can only be reached by a combination of the necessary Terms plus one or two other Terms. Finally, if there are terms such as "Review" which you wish to exclude, give them high negative Weights which will make it practically impossible to reach the Threshold in their presence. Otherwise, Weight all the Search Terms the same and set the Threshold so that a reasonable combination of them (say any two or three) will produce retrieval. Facility in this whole operation can only come with experience and by trial and error. It should be noted that a change in the relative Weights and/or the Threshold is one of the first steps to take in revising the search program if you find that the results of the first trial are unsatisfactory.

Looking at the 10 Descriptors selected for the first search in the example of the "skin painting" problem, you might well feel that any one of the first 5 Terms listed would be sufficient to make the document interesting; you would therefore Weight each of the first 5 Descriptors "2", and set the Threshold equal to "2". If the remaining 5 Search Terms are of less interest and should cause retrieval only if two of them are present in the document at the same time, these Search Terms would each be weighted "1". Obviously, you might retrieve a few more documents if you lowered the Threshold to "1". It would then seem that the "2" Weights were superfluous, but you might actually want to retain the difference in weighting simply as a rough guide to which documents were produced by which Search Terms, since the total Weights accrued on the document are printed out along with the Accession Numbers by the computer.

If you want to make a simple search of the System for all papers by either Wynder or Hammond on "skin painting" in the English language, then use Wynder, EL and Hammond, EC as Search Terms with Weights of "1", Skin painting: with a Weight of "2", and English language: with a Weight of "9", and set the Threshold equal to "12". Note that this strategy avoids retrieval of articles by Wynder and Hammond together which might not deal with skin painting.

The Year of publication can also be used as a Search Term. Suppose, for example, that in the animal skin painting problem referred to many time above, we were interested only in documents for the years 1965 and 1966; we would use 1965 and 1966 as Search Terms with relatively high Weights (say 5) and then raise the Threshold by that amount (by "5" and not by "10" since there can only be one year on a document).

SECTION V. HOW TO FILL OUT THE SEARCH REQUEST FORM

Filling out the SEARCH REQUEST FORM, must be done before any search is run, and the following must be especially noted: (see Appendix I)

1. the Weights and Classes must be indicated in parentheses in the proper stylized manner immediately following every Search Term
2. each letter or digit of the Search Terms must be printed or typed on the form.

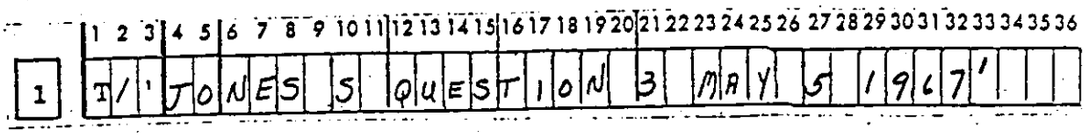
5.1 LINE 1

Note that line 1 on the form is for the title and already has "T/" in columns 1 and 2. This should be followed by up to 64 characters of identification information enclosed in single quotes, which will be printed out by the computer on each page of the search response. The title line is the identification line and contains information that will indicate to the user the question number or identification material as well as the date and requester's name.

The following is an example of a properly filled out title line (note that punctuation is not used):

T/'SMITH R — QUESTION NO 2 MAY 23 1967'

An example on the Search Request Form would look like:



5.2 LINE 2

Line 2 on the form is for the Threshold and already has "P/THR=" in columns 1-6. This should be followed by a number between 0 and 127, in such a way that a Threshold between 0 and 9 will be written column 7 (i.e., directly after the equals sign) while a Threshold between 10 and 99 will be written in columns 7 and 8. If no Threshold is specified by the user, the computer will automatically use a Threshold of 0. The following are three examples of properly fill out Threshold lines:

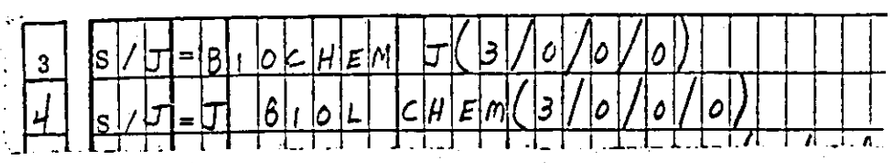
P/THR=3 P/THR=25 P/THR=115

An example on the Search Request Form would look like:

5.3 LINE 3 TO END

The remaining lines on the form, beginning with line 3 and ending with the E line, are for the Search Terms and already have "S" in columns 1 and 2; at least one "S" line must be included in every search. The order in which the Search Terms are entered on the form makes no difference, as long as the proper code letter (N, C, A, F, Y, J, D) is used in column 3, and as long as the very last numbered line is an "E" line (indicating the end of the search). The actual Term being searched for can be a maximum of 64 characters in length, beginning column 5, and must be enclosed in single quotes if it contains any characters other than letters, digits, or blanks. Single quotes may only be necessary with Author or Affiliations.

An example on the Search Request Form would look like:



5.3 SUFFIX (WEIGHT)

Each Search Term must be followed immediately by a "suffix" in parentheses which indicates the Weights to be assigned to the Term and the Classes which will be searched for it. The Weights are indicated by numbers and the Classes by the position of these numbers within the slash marks. This format can best be explained by means of the following examples:

(the weight in all of the following examples is "2", but it could be just as well be any number from "-9" to "+9)

Search all Classes	(2/2/2/2)
Search only Class 1, ignore the rest:	(2)
Search only Classes 1 and 2, ignore the rest:	(2/2)
Ignore Classes 1 and 2, search Classes 3 and 4:	(//2/2)
Ignore Classes 1, 2 and 3, search only Class 4:	(///4)
Ignore Classes 1, 2 and 4, search only Class 3:	(//2)
Ignore Classes 1, 3 and 4, search only Class 2:	(/2)

The use of the various types of Search Terms may be made clearer by a few more examples in the Appendix I.

SECTION VI. HOW TO COMMUNICATE WITH THE IS&R SYSTEM

Users may address questions to the System through one of two channels: Through the Project Officer or directly to Systems Science Corporation. Users are encouraged to go through the Project Officer with most of their questions during the first several months of operation. This will enable the Project Officer to furnish assistance in formulating questions and in evaluating results, thereby both enabling him to give the users the benefit of his greater familiarity with the System and enabling him to receive feedback on what changes and modifications we can make in our operating procedures to improve its performance in the future.

6.1 COMMUNICATING VIA THE PROJECT OFFICER

In order to ask a question through the Project Officer, a user must communicate the following information to the Project Officer: his name; the exact address to which the answer is to be returned; the degree of urgency of the question; and the question. Priority or urgency might be stated in the following ways: answer necessary within one week; answer necessary within 2-3 days; answer necessary within 24 hours; answer necessary within 2 to 3 hours, or as fast as possible. Because

Systems Science Corporation must interrupt their other work in order to ask any question on an immediate basis, users should assign no more urgent priority to any question than is necessary. Asking a lower priority question will allow System Science Corporation to "bunch" questions from a number of users together, for greater economy.

In communicating the question, the user should at least have formulated the question in natural language and have some idea of the extent of search and answer desired. Preferably, he will have completely formulated his question in computer-receivable form, as explained in the previous section and as shown on the Search Request Form.

The User may choose any one of three methods of communicating this information to the Project Officer. He may communicate it by mail , by TWX or by telephone .

The Project Officer's TWX address is 710-822-9381. The Project Officer's mailing address and telephone number are as follows:

Mr. Simon O'Shea
919 18TH Street, Room #300
Washington, D. C.
Telephone - (202) -737-9038

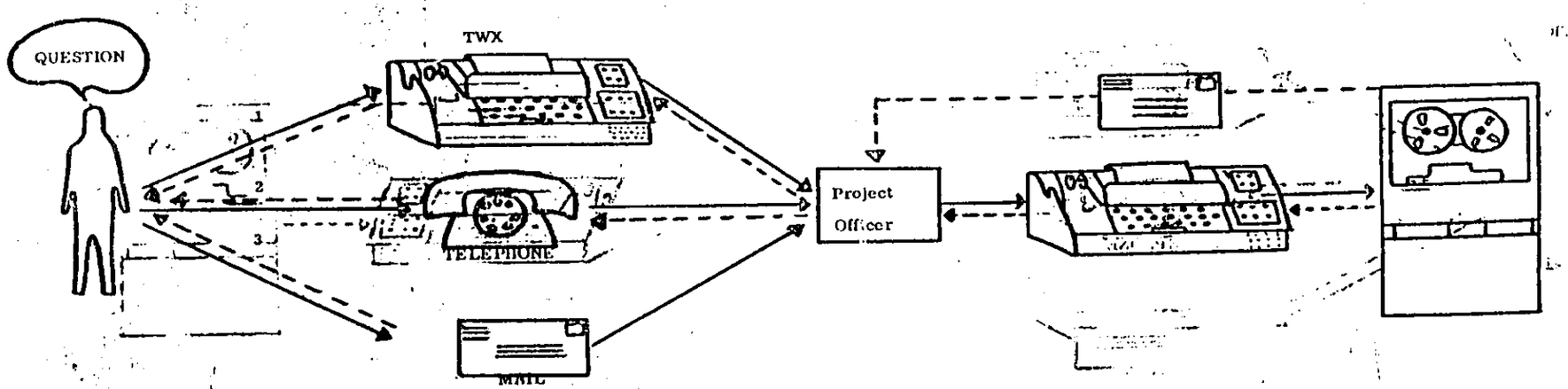
If the Project Officer is not available, 3i can formulate the question and process it in the usual manner. 3i's TWX address is 710-670-0325.

After receiving this information from a questioner, the Project Officer will formulate the question in computer-receivable form, if necessary, and direct the question to Systems Science Corporation over TWX. Systems Science will then run the question on the computer in accordance with the priority designated.

If Systems Science Corporation received the question from the Project Officer by TWX, it will also communicate the answer to the question back to the Project Officer by TWX, the Project Officer, in turn, will immediately communicate the answer to the user by telephone, and mail him a copy of the TWX printout. A sample of this TWX printout is presented on the following page. Each element retrieved by System Science is presented on this printout.

In addition, System Science will mail the actual computer printout direct to the Project Officer which will enable him to keep records of questions asked and so that he can evaluate answers.

On special request to the Project Officer, arrangements can be made for the



1. User asks question via 1, 2, or 3
2. Answer(accession numbers) sent via 3, and 1 or 2

LEGEND-
QUESTION
ANSWER

user to receive a copy of the computer printout.

6.2 DIRECT COMMUNICATION

The second general way for a user to communicate a question to the System is to do so directly to Systems Science Corporation. Their address 1104 Spring Street, Silver Spring, Maryland. Their TWX number is 710-825-9763. Each user must communicate exactly the same information to Systems Science that was noted above when going through the Project Officer. When going directly to Systems Science, however, the user must have formulated his question in computer-receivable form. This means that he must have completely written his question out on the Search Request Form, as explained in the previous section. The user may communicate with Systems Science either by letter or by TWX.

Telephone communications may not be used in transmitting a question to them.

Systems Science will run the question and mail the computer printout to the Project Officer. If a question was received by TWX, the answer will be returned by TWX. If the question was received by letter, no other return communication than the sending of the copy of the TWX format answer (see above) to the questioner will be used. These conventional procedures may be varied by specific instruction to Systems Science when the user communicates his question to them.

These procedures have been planned with appropriate security precautions in mind. As soon as a question has been run, Systems Science will destroy their copies of either the TWX or the letter by which the question was communicated to them. There is no written record anywhere of an answer other than computer printout mailed to the Project Officer. The Project Officer will retain his copy of the question and answer for evaluation purposes, but will store them securely. In addition, for particularly sensitive questions, a user may instruct the Project Officer to destroy all of his records on the question and the answer.

TI SLVR SPRING
6/16/67 11:00 AM

RESULTS OF 'JONES QUESTION 2 JUNE 12'

WEIGHT	NUMBER	YEAR	CATEGORY
1	0524	65	1
6	0976	65	1
11	1264	65	1
1	1302	64	1
3	4495	65	1
1	0456	64	2,4,6,8
7	1173	64	1
5	2418	64	1
2	1125	64	1
1	2510	64	2

END RESULTS

6.3 EVALUATION OF THE SEARCH RESULTS

On receiving your answer, the first step will usually be to find the corresponding Aperture Cards and examine Annotations printed on the Aperture Card, to see how pertinent the documents really are. The entire article photocopied on the Aperture Card can also be read on a microfilm reader, if desired, in order to find information that may not have been in the Annotation. Next, examine the list of Descriptors which have been used to describe each of the retrieved documents, mainly to see whether there are some which were not used as Search Terms and which might yield other pertinent documents on a second attempt.

If the first search is satisfactory and if an examination of the Descriptors used doesn't make you feel that something very important may have been missed, then you can consider your question answered. If there were too many Accession Numbers on the first list which were not useful in answering the problem, and if this list is too long to be screened manually, then you may have to do a narrower second search. This can be accomplished either by discarding some of the Search Terms or by lowering the Weights in realtion to the Threshold, or both.

If too few documents were produced by the first search, then additional Search Terms should be added and the search rerun. Some revision in the assignment of Classes and Weights might also produce additional documents. In the example we have developed in this manual, it would not be necessary to rerun those Search Terms which were weighted "2" with a Threshold of "2", since all such documents would already have been retrieved, but we might want to add the remaining potential Descriptors to those which were weighted "1" and run them all with a Threshold of "1".

APPENDIX A

INFORMATION CHECK LIST

The following is a check list that can be used as a reminder of the types of information that are stored in the System. It should be used in formulating your question.

TYPE OF ARTICLE- (use one or more)

Autopsy study	Editorial
Biochemical study	Endemiological study
Biopsy study	Enzyme study
Book review	Epidemiological study
Chemical study	Genetic study
Chromosome study	Hematological study
Chronic toxicity study	Histochemical study
Clinical study	Histological study
Cytochemical study	Histopathological study
Cytological study	Immunological study
Double blind study	Interview study

TYPE OF ARTICLE (use one or more) cont'd

In vitro study
Letter to editor
Metabolic study
Mortality study
Oral communication
Pathological study
Pharmacologic study
Physiological study
Preliminary report
Probability study
Prospective study
Psychological study
Questionnaire study
Radioisotope study
Retrospective study
Review
Serological study
Statistical study
Survey study
Toxicity study
Twin study
Virological study
Work product
X ray study

NUMBER OF SUBJECTS (use one)

One
Ten
Hundred
Thousand
Ten Thousand
Hundred Thousand
Hundred Thousand plus

TYPES OF SUBJECTS STUDIED (use one or more)

Caucasian data
Exsmokers
Female data
Fetal data
Male data
Male-female data
Maternal data
Microorganisms
Negro data
Noncaucasian data
Nonsmokers
Oriental data
Plants
Rural data
Suburban data
Tissue cultures
Urban data

Use also specific ethnic, population and religious groups.

For animals specify: dogs, cats, mice, etc. unless you want all ANIMAL STUDIES in which case you should include the letter "A" after your Search Terms.

FACTORS (use one or more)

Age factors
Climatic factors
Constitutional factors
Cultural factors
Demographic factors
Dietary factors
Economic factors
Educational factors
Emotional factors
Endocrine factors
Environmental factors
Epidemiological factors
Ethnic factors
Familial factors
Genetic factors
Geochemical factors
Geographic factors
Geological factors
Geophysical factors
Hereditary factors
Hormone factors
Host factors
Immunological factors
Industrial factors
Maternal age factors
Mental health factors
Neurological factors
Nutritional factors
Occupational factors
Personality factors
Physical factors
Physiological factors
Previous disease factors
Psychological factors
Psychosocial factors
Psychosomatic factors
Race factors
Radiation factors
Recreational factors
Religious factors
Risk factors
Rural factors
Seasonal factors
Sex factors
Social factors
Socioeconomic factors
Stress factors
Time factors
Toxic factors
Urban factors

Are you interested in:

_ tertiary authors
residences by city and country
language of original document
geographical sites
professions
drugs administered
clinical or physical parameters
grantors

Remember the following format has been used in formulating Search Terms -

_____ tobacco causation _____
disease 1, 2, 3

_____ _____ causation _____
disease agent 1, 2, 3

_____ smoking _____
disease association, non-association, negative association

Smoking _____ _____
factor association, non-association, negative association

_____ _____ _____
variable variable association, non-association, negative association

Smoking reduction

Smoking amount

Smoking duration

Smoking discontinuation

_____ carcinogenicity
agent

_____ noncarcinogenicity
agent

_____ _____ dose response
agent positive, negative

(April 24, 1967 - meeting revision) 4/25/67

APPENDIX B

SCOPE OF COVERAGE

IS&R

Introduction

The presentation below is based on the 8 subject-matter categories which have been developed for classification of material in the IS&R system. It is assumed that the material screened will consist of scientific and technical journals, primary and selected secondary, received by libraries specializing in medicine, by the 3i Library and the Library of the College of Physicians of Philadelphia and will not include the lay press or literature in the physical or mathematical science

SECTION I. TOBACCO-RELATED REFERENCES (CATEGORIES 1, 3, 5 & 7)

With the exceptions outlined below, any articles which discuss or present data on the properties, use, and health or biological effects of tobacco in any form (cigarettes, pipes, cigars, snuff, chewing tobacco, tobacco tars, nicotine, nor-nicotine, or anabasine) will be selected. The following will not be selected:

1) case reports in which it is merely mentioned that the patient smoked, without any discussion of etiology or differences between smokers and nonsmokers.

2) pharmacological papers in which nicotine is used merely as a reference compound, or in which a well-known nicotine effect is used as a standard test system.

3) articles on the cultivation or biochemisty of the tobacco plant or on the prevention and treatment of its diseases (such as tobacco mosaic virus) unless there is reference to health or biological effects of tobacco.

4) articles on the physical properties and chemical composition of tobacco smoke in the technical non-medical literature, unless there is reference to health or biological effects of tobacco.

5) unsigned editorials and reviews without bibliographies in languages other than English, unless they contribute HI.

SECTION II. NO-TOBACCO REFERENCES (CATEGORIES 2, 4, 6 & 8)

Etiology and epidemiology (morbidity and mortality) of those diseases listed in the Surgeon General Report will be included. Category 8 will also include literature involved in the smoking and health controversy but not related to a specific disease (see Section II D. 2).

A. CANCER, NO-TOBACCO REFERENCE (CATEGORY 2)

1) Etiology and Epidemiology, not diagnosis or treatment, of all primary cancers of the respiratory tract -- nasopharynx, larynx, tonsils, trachea, bronchi & lungs -- and lip, tongue, gingiva, palate, oral cavity,

pharynx will be annotated. Etiology and epidemiology of primary cancers of the urinary bladder will be annotated, except where only dyes or parasites are involved. In those cases only major reviews will be annotated and all other articles will not be selected. Etiology and epidemiology of primary cancer of all other sites will be simply listed by author, title, journal, and the main two or three descriptors confined to disease etiology or epidemiology.

2) Carcinogenesis - mechanisms and experimental including tissue culture:

a) Radiation health and biologic effects in the lung by any form of radiation or in any other organ by inhalation, in man or animal, or the failure to find any such effects following any form of radiation, specifically including, but not limited to Polonium 210.

b) Viruses as a possible cause of cancer in humans will be covered. Viral carcinogenesis studies in animals will be covered except for leukemia, mammary carcinoma, Shope's papilloma, Rous sarcoma virus and Leukemia virus. Major breakthroughs in any of these areas, however, will be selected.

c) Chemical carcinogenesis:

i) with reference to humans, included will be occupational carcinogenesis to the respiratory system and bladder, except dyes, and chemical carcinogenesis due to compounds related to the constituents of tobacco smoke, carcinogenic properties of food products and environmental factors, and the possible role of cocarcinogens, promoters and initiators.

ii) with regard to experimental animals and tissue culture:

1) chemical carcinogenesis will be included only as it pertains to the organ systems in the Surgeon General's Report, or if applied to new species, or if threshold levels for carcinogenesis are discussed.

2) cutaneous carcinogenesis with known carcinogens which are not components of tobacco smoke or tar will be excluded, as will studies on bladder cancer due to known carcinogenic dyes in dogs.

3) to the extent possible, chemical carcinogenesis due to compounds related to the constituents of tobacco smoke, or likely eventually to be found in tobacco smoke, will be included.

iii) emphasis in all studies on chemical carcinogenesis will be given to mechanisms of action and structure-activity relationships.

(Notes: dose response, mechanism, breakthroughs, identification of carcinogenic properties in so called innocuous substances, such as medicine, drugs, glucose, etc.)

d) Carcinogenesis due to trauma and other factors will be covered only with reference to the organ systems discussed in the Surgeon General's Report, thus not including the skin.

3) Cancer Histopathology will be covered as follows:

a) As to the respiratory system, systems of classification and typing of malignant cells

b) So called "premalignant change" and malignant transformation

c) Observations relating to atypisms, inflammatory and other, including leukoplakia, hyperplasia, metaplasia, carcinoma in situ, atypical proliferation, etc. Note particularly observations as to reversibility or irreversibility.

4) Cancer Diagnosis will be covered only if the article reflects controversy over the adequacy of various methods or as it pertains to the problem of the true morbidity and mortality of the disease. Materials relating to confusion of diagnosis as result of metastases to or from the respiratory system will be covered. Include articles with data as to frequency of such metastases.

5) Cancer Immunology, except as it relates to therapy, will be included.

B. RESPIRATORY SYSTEM, NO-TOBACCO REFERENCE (CATEGORY 4)

1) Etiology and Epidemiology, not diagnosis or treatment, of those non-cancerous respirator diseases and conditions listed in the Surgeon General's Report as being associated with smoking, including:

a) Chronic bronchitis) includes articles on
b) Pulmonary emphysema) differential diagnosis
c) Bronchiectasis
d) Non-allergic asthma
e) Non-infectious rhinitis, laryngitis, dry mouth, cough, dyspnea, and sputum production
f) Pneumonia, influenza, respiratory tuberculosis only if etiology, epidemiology or relationship to cancer is a subject of the article

2) Etiology and Epidemiology, not diagnosis or treatment, of occupational respiratory disease (e.g., silicosis, asbestosis, pneumonoconiosis, byssinosis) will be included only if the possible relationships to respiratory cancer or other smoking associated diseases are discussed.

ALTERNATIVE FOR II - B) 2): Delete II B) 2) and substitute:
Etiology and epidemiology, not diagnosis or treatment, of occupational respiratory disease (e.g., silicosis, asbestosis, pneumonoconiosis, byssinosis) will be included.

3) The Physiology and Function of the Lung will be covered only with respect to the following:

a) Adverse effects of non-drug inhalants in animals or man

b) Effects of non-drug inhalants on clearance mechanisms, ciliary activity, loss of cilia, the transport and secretion of mucus and histological and cytological changes or atypisms in the lungs (including hyperplasia, metaplasia, etc.)

C. CARDIOVASCULAR SYSTEM, NO-TOBACCO REFERENCE (CATEGORY 6)

1) Etiology and Epidemiology, not diagnosis or treatment, of cardiovascular diseases, including:

   a) Coronary artery disease, coronary heart disease, or ischemic heart disease (including coronary thrombosis and myocardial infarcation)

   b) Vascular disease (e.g., cerebrovascular accident, stroke, Buerger's disease or thromboangiitis obliterans, Raynaud's disease, arteritis, idiopathic gangrene, occlusive vascular disease, atherosclerosis, obliterative arteriosclerosis, aneurysms, hypertension)

   In a) and b) emphasis should be placed on:

   1) the association between cardiovascular disease and exercise, alcohol consumption, obesity, aging, sex factors, marital status, hypercholesteremia or diabetes

   2) the possible role of genetic, ethnic, dietary, cultural, psychological, emotional, socioeconomic, and occupational factors

2) Excluded will be infectious (including rheumatic) cardiovascular diseases, congenital heart defects, cor pulmonale, congestive heart failure, angina pectoris, cardiac arrhythmias, ventricular fibrillation, hypertension occassioned by renal disorders, tachycardia and bradycardia, unless there is a discussion of the relationship to a disease or diseases otherwise covered in this memorandum.

3) Articles relating to the factors causing or to the possible pathogenic significance of acute cardiovascular responses.

4) Articles relating to the possible pathogenic significance of blood chemistry factors (including articles relating to the factors causing changes of possible pathogenic significance of such blood chemistry factors) with respect to a disease or diseases otherwise covered in this memorandum.

ALTERNATIVES FOR II C) 3) and II C) 4):

1. Total inclusion
   a. List
   b. Annotate
2. Total exclusion
3. Selective screening for HI by a cardiologist
4. Selective screening from selected journals

D. MISCELLANEOUS, NO-TOBACCO REFERENCE (CATEGORY 8)

1) Etiology and Epidemiology, not diagnosis or treatment, of various diseases listed in the Surgeon General's Report as being associated with smoking will be simply listed by author, title, journal, and the main two or three descriptors confined to disease etiology or epidemiology, including:

a) Amblyopia, chemical conjunctivitis, and decreased visual acuity
b) Cirrhosis of the liver
c) Peptic ulcer (gastric and duodenal)
d) Esophageal or gastric irritation

ALTERNATIVES FOR II D) 1): 1. With microfilm reproduction
2. Without microfilm reproduction

2) Literature Dealing with Certain Other Aspects of the smoking and health controversy, as follows:

a) The problems of statistical and epidemiological studies, such as etiological significance, self selection, deficiencies in sampling techniques and questionnaires, inaccuracies of death certificates or other documents on which survey studies are based, etc.

b) The difference between association and causation, or between opinions and scientifically proven facts, Koch's postulates, the scientific method, etc.

c) The problems of extrapolation from animal experiments to the human situation, species differences, etc.

d) The effectiveness of labelling and advertising regulations.

e) The proper role of government in matters relating to public health, including the advisability of making recommendations for action on the basis of epidemiologic studies and statistical associations.

POSSIBLE ADDITION II D 3): List only all case reports of tobacco related diseases where occupation is mentioned. (To be reviewed after a two month scan)

4/24/67

APPENDIX C

CATEGORIES FOR THE CLASSIFICATION OF MATERIALS IN THE IS&R SYSTEM
(April 19, 1967 - meeting - revision)

The following Categories will be used to classify all materials in the System:

1. Cancer -- Tobacco Reference
2. Cancer -- No-Tobacco Reference
3. Respiratory System (No Cancer) -- Tobacco Reference
4. Respiratory System (No Cancer) -- No-Tobacco Reference
5. Cardiovascular System (No Cancer) -- Tobacco Reference
6. Cardiovascular System (No Cancer) -- No-Tobacco Reference
7. Miscellaneous -- Tobacco Reference
8. Miscellaneous -- No-Tobacco Reference
9. Medical Opinion

Use of the category system results in more efficient storage and retrieval since it reduces the number of documents and Descriptors to be searched.

An article may be stored either in one Category or in several Categories. For example, an article dealing with cancer and tobacco, cardiovascular system and tobacco, and respiratory system and tobacco, would go into Categories 1, 3 and 5.

An article dealing specifically with "total mortality" but not with any individual diseases (e.g., Hammond & Horn, Part I) would be stored in Category 7 in the case of a tobacco reference and in Category 8 if tobacco, smoking, or nicotine were not mentioned.

Category 9, which may not be combined with any of the first 8 Categories, will be used to store editorials, letters, comments to the press, or other documents expressing an opinion in the absence of a formal presentation of clinical or experimental findings, found in the scientific press.

APPENDIX D
DEFINITION OF DESCRIPTORS AND DESCRIPTOR COMPONENTS

Male data	this indicates the presence of male numerical information
Female data	this indicates the presence of female numerical information
Male-female data	this indicates the presence of male and female numerical information
Sex ratio change	indicates data reporting widening or narrowing of sex ratio
Sex factors	this is a general term used for articles discussing sex differences, in whole or in part, and not presenting a niere quantitative ratio
Number descriptors	The number of cases, subjects, or animals in the study will be indicated by: one ten - for numbers up to 10 and more than one hundred - for numbers up to 100 and more than 10 thousand - for numbers up to 1,000 and more than 100 ten thousand - for numbers up to 10,000 and more than 1,000 hundred thousand - for numbers up to 100,000 and more than 10,000 hundred thousand plus - for numbers higher than 100,000
A	The A, used only following another descriptor, indicates that the descriptor refers to animals.
Dose response	this refers to the relationship, in the author's opinion between the dose administered and the effect obtained; this will be modified by either "positive", when a positive relationship is stated or "negative", if the relationship is stated to be lacking or negative.
Smoking amount	this term, often found in conjunction with "smoking duration", refers to the number of packs per day or a similar quatitative measure, including modifiers such as "heavy" or "light". This term refers to any type of quantitative data or statement.
Etiology	this term will not be used, being replaced by "causation".
Beneficial effect claimed	this term is understood to refer to claimed beneficial effects of tobacco use.
Adverse effect claimed	this term will not be used, but will appear in the Thesaurus followed by all of the claimed adverse effects present in the system.

Concession	this term is used as a modifying term when the author is admitting to a deficiency, limitation or doubt, as to a claimed adverse effect.
HI	this is used after another descriptor and stands for helpful information.
Association Negative association Nonassociation	refers to the presence of a direct or inverse relationship between the occurrence of two variables or the absence of any relationship.
Causation 1	this indicates a definite expression of opinion that an agent named causes, to some degree, the disease listed; this term can be followed by NPB, which stands for "no proof but" and is used to show that the author expressed an opinion in the admitted absence of evidence.
Causation 2	this term indicates that the author either feels that the causation of the disease is still unknown, fails to come to any conclusion about the causation of the disease, or makes only inconclusive statements such as that a causal relationship is suggested. In the former two instances Causation 2 will be modified by HI.
Causation 3	this indicates a definite expression of opinion that the agent named plays no significant role in the causation of the disease.

APPENDIX E

4-25-67

DEFINITION OF PRIMARY, SECONDARY, TERTIARY, AND QUATERNARY DESCRIPTORS

The ANNOTATION presents the nature and scope of the document and its major findings, and to the extent possible, in approximately 100 words or less, the major opinions, major concessions, major beneficial effects, Helpful Information and major conclusions found in the document.

PRIMARY DESCRIPTORS reflect the nature and scope of the document and its major findings.

SECONDARY DESCRIPTORS reflect fully the author's methods, results, opinions, concessions, conclusions, and beneficial effects and Helpful Information. Causation will appear as a secondary descriptor.

TERTIARY DESCRIPTORS refer to physical effects and clinical observations in relation to tobacco and non-tobacco use which do not appear in either the primary, secondary or quaternary descriptors. When the author reports physical effects or clinical observations using such modifying terms as "increased", "decreased", "unchanged", "normal", or "abnormal", descriptors will be so modified to reflect the corresponding concepts. Descriptors will not be modified when the author gives no interpretation to reported values. All other user oriented data presented without discussion or interpretation will also be given TERTIARY DESCRIPTORS.

QUATERNARY DESCRIPTORS refer to remote subject matter mentioned by the author with or without related data; also included are all geographic references. The country of residence of the authors and the language of original publication will also appear in this column. If a document is simultaneously published in more than one language, of which one is the English language, the article will be indexed as "English language". The findings of other authors to which an author refers with a bibliographic citation will not be indexed; instead, it is contemplated that relevant articles will themselves, eventually, be included in the system.

CITATION INFORMATION

I. The following information (listed in order of appearance) is presented above the annotation:

A. Accession Number: Line 1, far left

B. Category Number(s): Line 1, far right

C. Title of Article: All caps

1) If the original document is in a foreign language, the English title is used and is followed by the original language in parentheses; e.g., (German).

2) If the document annotated is a translation, the English title is used and is followed by "Translated from" and the original language, the entire phrase in parentheses; e.g., (Translated from German).

3) Any sub-title is included immediately after the main title, separated from it by a colon (:).

D. Source of Article: Journal Volume (Number): inclusive pages, year; e.g., New Eng J Med 275(25): 1413-1419, 1966

E. Author(s): All caps

1) All author names are inverted (last name first followed by initials).

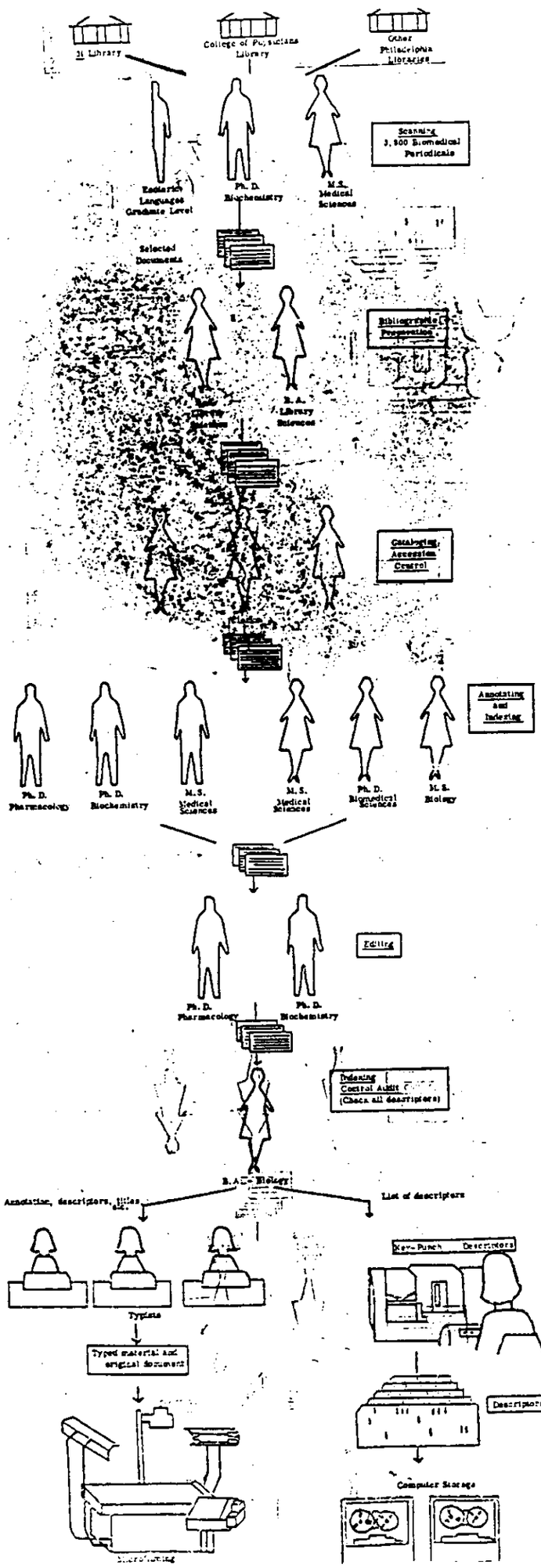
2) A slash (/) separates the primary (senior) author from all of the secondary authors.

3) After another slash are listed the names of all tertiary authors, i.e., individuals to whom credit is given (in the body of the paper or in the footnotes) for contributing to the work.

4) If an article has no secondary authors, the primary and tertiary authors are separated by two slashes.

II. The institutional affiliations (All caps) of the primary and secondary authors are presented below the annotation:

A. The affiliation(s) of the primary author is separated from those of the secondary authors by a slash. All other affiliations are separated by a semi-colon (;).


College of Physicians Library
Other Philadelphia Libraries
Scanning 3,900 Biomedical Periodicals
Eastern Languages Graduate Level
Ph. D. Biochemistry
M.S. Medical Sciences
Selected Documents
Bibliographic Preparation
B.A. Library Sciences
Cataloging Accession Control
Annotating and Indexing
Ph. D. Pharmacology
Ph. D. Biochemistry
M.S. Medical Sciences
M.S. Medical Sciences
Ph. D. Biomedical Sciences
M.S. Biology
Editing
Ph. D. Pharmacology
Ph. D. Biochemistry
Indexing
Control Audit
(Check all descriptors)
B.A. - Biology
Annotation, descriptors, titles
List of descriptors
Typists
Typed material and original document
Key-Punch Descriptors
Descriptors
Computer Storage

LG 2018282

APPENDIX H

AUTHOR AUTHORITY LIST

(List of Authors in the System)

IRSSCI AUTHORITY LIST AND REFERENCE COUNT
AUTHOR LIST

BRUNE, H
BRUNE, J
BRUNO, V
BRUNSCHWIG, A
BRUNSMAN, HG
BRUYNS, C
BRYAN, E
BRYAN, GT
BRYCN, PA
BRYSON, G
BUBENIK, J
BUCCIARELLI, E
BUCK, AR
BUCKINGHAM, S
BUCKLEY, RC
BUCKNELL, A
BUDDEE, M
BUDNA, J
BUDNA, JN
BUECHLEY, RW
BUECHNER, HA
BUELL, CC
BUKOVAC, MJ
BULBRING, E
BULLOCK, BC
BULCN, I
BUNGE, R
BUNZELL, HH
BUCEN, LC
BUCNVINE, M
BURCH, PRJ
BURDETTE, WJ
BURK, D
BURKE, DH
BURKE, G
BURKE, RM
BURKE, WT
BURMESTER, ER
BURN, H
BURN, I
BURN, JH
BURNET, M
BURNHAM, C
BURNS, JJ
BURNSTOCK, G
BURR, RC

APPENDIX G

DESCRIPTOR AUTHORITY LIST

(List of Descriptors in the System)

IRSSDI AUTHORITY LIST AND REFERENCE COUNT
DESCRIPTOR LIST

CORONARY ARTERY FATTY STREAKS
CORONARY ARTERY FLOW A
CORONARY ARTERY FLOW DURATION A
CORONARY ARTERY LESIONS
CORONARY ARTERY OCCLUSION SMOKING CAUSATION 1
CORONARY ARTERY OSTIAL ZONES
CORONARY ARTERY PATHOLOGY A
CORONARY ARTERY PERFUSION A
CORONARY ARTERY PRESSURE
CORONARY ARTERY PRESSURE A
CORONARY ARTERY SPASM
CORONARY ARTERY STENOSIS
CORONARY ARTERY STENOSIS SMOKING ASSOCIATION
CORONARY ARTERY TISSUE METABOLISM A
CORONARY ATHEROGENESIS CANE SUGAR ASSOCIATION A
CORONARY ATHEROGENESIS DIETARY CARBOHYDRATES ASSOCIATION A
CORONARY ATHEROGENESIS SUCROSE ASSOCIATION A
CORONARY ATHEROMATOSIS
CORONARY BLOOD FLOW
CORONARY BLOOD FLOW A
CORONARY BLOOD FLOW ARTERIAL OXYGEN TENSION ASSOCIATION A
CORONARY BLOOD FLOW ARTERIAL OXYGEN TENSION NONASSOCIATION
CORONARY BLOOD FLOW CHANGES
CORONARY BLOOD FLOW CHANGES A
CORONARY BLOOD FLOW DECREASE
CORONARY BLOOD FLOW DECREASE A
CORONARY BLOOD FLOW HEART MINUTE VOLUME ASSOCIATION
CORONARY BLOOD FLOW INCREASE SMOKING CAUSATION 3
CORONARY BLOOD FLOW METHODOLOGY
CORONARY BLOOD FLOW MYOCARDIAL OXYGEN CONSUMPTION ASSOCIATION
CORONARY BLOOD FLOW PATTERN A
CORONARY BLOOD FLOW PULMONARY PRESSURE NEGATIVE ASSOCIATION
CORONARY BLOOD FLOW RESISTANCE A
CORONARY BLOOD FLOW UNCHANGED
CORONARY BLOOD FLOW VENOUS OXYGEN TENSION ASSOCIATION
CORONARY CHEMOREFLEX
CORONARY CIRCULATORY INSUFFICIENCY COR PULMONALE ASSOCIATION
CORONARY DISEASE
CORONARY INSUFFICIENCY
CORONARY INSUFFICIENCY CIGARETTE SMOKING ASSOCIATION
CORONARY INSUFFICIENCY DIAGNOSIS
CORONARY OCCLUSION
CORONARY OCCLUSION SMOKING ASSOCIATION
CORONARY RESISTANCE
CORONARY RISK FACTORS
CORONARY SCLEROSIS SMOKING NONASSOCIATION
CORONARY SINUS A

PERMUTED
THESAURUS

CHARGE DENSITY
SPACE CHARGE DENSITY
CHARGE EXCHANGE
CHARGED PARTICLE
PLASMA CHARGED PARTICLE
CHARGED PARTICLE SHIELDING
BATTERY CHARGER
STAR CHART
WEATHER CHART
SUBMARINE CHASER
ELECTRONIC CHECKOUT
CHECKOUT EQUIPMENT
CHELATE COMPOUND
CHELATION
DYE CHEMICAL
RUBBER CHEMICAL
PHOTOGRAPHIC CHEMICAL
CHEMICAL ABSORPTION
CHEMICAL AGENT
CHEMICAL AGENT FILTER
CHEMICAL AGENT SAMPLER
METAL CHEMICAL ANALYSIS
MINIATURE CHEMICAL ANALYSIS DEVICE
CHEMICAL BOMB
CHEMICAL BONDING
CHEMICAL BOOSTER
CHEMICAL COMPOSITION
CHEMICAL COMPOUND
CHEMICAL CONFERENCE
CHEMICAL DECOMPOSITION
CHEMICAL DECONTAMINATION
CHEMICAL DECONTAMINATION MATERIAL
CHEMICAL DEFENSIVE TRAINING
CHEMICAL DELIVERY METHOD
CHEMICAL DEPOSITION
CHEMICAL DETECTION
CHEMICAL DISPENSER
CHEMICAL DISPERSION
CHEMICAL DRYING
CHEMICAL ENERGY CONVERSION
CHEMICAL ENGINEERING
CHEMICAL EQUILIBRIUM
CHEMICAL EXPLOSION
CHEMICAL FUSE
CHEMICAL IDENTIFICATION
CHEMICAL INDUSTRY
CHEMICAL KINETICS
CHEMICAL LABELLING
CHEMICAL LABORATORY APPARATUS
CHEMICAL MARKING AGENT
CHEMICAL MECHANICS
CHEMICAL MUNITION
CHEMICAL NEUTRALIZATION
CHEMICAL PERSONNEL

CHE-CHE

CHEMICAL ENGINEERING (16)

CHEMICAL EQUILIBRIUM (16)
SN THE STATE REACHED IN A REVERSIBLE REACTION WHEN THE REACTION VELOCITIES IN OPPOSING DIRECTIONS ARE EQUAL SO THAT THE SYSTEM HAS NO FURTHER TENDENCY TO CHANGE
BT CHEMICAL REACTION
NT ACID BASE EQUILIBRIUM
RECOMBINATION REACTION
SA EQUILIBRIUM CONSTANT

CHEMICAL EXPLOSION
SYNONYM OF DETONATION

CHEMICAL FUSE (50)
BT WEAPON FUSE

CHEMICAL IDENTIFICATION (16)
BT ANALYTIC CHEMISTRY

CHEMICAL INDUSTRY (16)

CHEMICAL KINETICS (16)
BT CHEMICAL MECHANICS
NT CHEMICAL REACTION KINETICS
OXIDATION KINETICS
SOLUTION KINETICS

CHEMICAL LABELLING (16)
SN THE INTRODUCTION OF A DETECTABLE ISOTOPE INTO A COMPOUND IN ORDER TO FOLLOW THE COURSE OF A REACTION. INCLUDES THE EFFECT OF DEUTERATION OR TRITIATION ON THE REACTIONS OF THE COMPOUND
BT CHEMICAL REACTION
SA ISOTOPE

AFFILIATION AUTHORITY LIST

(List of Affiliations in the System)

IRSSCI AUTHORITY LIST AND REFERENCE COUNT
AFFILIATION LIST

ESSC RES ENG CO, LINDEN, NJ
EV COUNTY HEAL DEPT, CLAXTON, GA
EV HOSP ASS, EVANSTON, ILL
EV HOSP, ILL
FAC MED, DAKAR, SENEGAL
FAC MED, NANCY, FRANCE
FAC MED, PARIS, FRANCE
FAC MED, SARAJEVO, YUGOSLAVIA
FAIRL DICK U, MADISON, NJ
FALU HOSP, FALUN, SWEDEN
FED MIN HEALTH, BERLIN, WEST GERMANY
FINS I, COPENHAGEN, DENMARK
FIRST MOSC MED I, MOSCOW, USSR
FOOD DRUG ADM, WASHINGTON, DC
FORDH U, NEW YORK, NY
FORS CENT CENT, BOSTON, MASS
FORSV RES I, SUNDBYBERG, SWEDEN
FORT SAM HOUST, HOUSTON, TEX
FOUR AREA GAS BOARDS, UK
FRAM UN HOSP, MASS
FRANC DEL HOSP, NEW YORK, NY
FREE HOSP WOM, BROOKLINE, MASS
FREE U BERL, BERLIN, GERMANY
FRESNO COUNTY GEN HOSP, CALIF
GAM I EP MICR, MOSCOW, USSR
GANDH MED COLL, BHOPAL, INDIA
GEIS MED CENT, DANVILLE, PA
GEN EL CO, RICHLAND, WASH
GEN HOSP, BUDAPEST, HUNGARY
GEN HOSP, JOHANNESBURG, SOUTH AFRICA
GEN REG OFF, LONDON, UK
GEN U, GENOA, ITALY
GEOR PEAB COLL, NASHVILLE, TENN
GEORG U HOSP, WASHINGTON, DC
GEORG U SCH MED, WASHINGTON, DC
GEORGE WASH U HOSP SCH MED, WASHINGTON, DC
GEORGE WASH U HOSP, WASHINGTON, DC
GER AC SCI, BERLIN, GERMANY
GERM AC SCI, BERLIN, GERMANY
GERM CENTR I SOC MED, BERLIN, GERMANY
GERM RES LAB FOOD CHEM, MUNICH, GERMANY
GERMF LIFE RES CENT, TAMPA, FLA
GLASG U, GLASGOW, UK
GLENR HOSP, SCHENECTADY, NY
GLOUC RCY HOSP, GLOUCESTER, UK
GOV GEN HOSP, MADRAS, INDIA
GOV LAB FOR CHEM, STOCKHOLM, SWEDEN
GRACE HOSP, CALGARY, CANADA

JOURNAL AUTHORITY LIST

(List of Journals in the System)

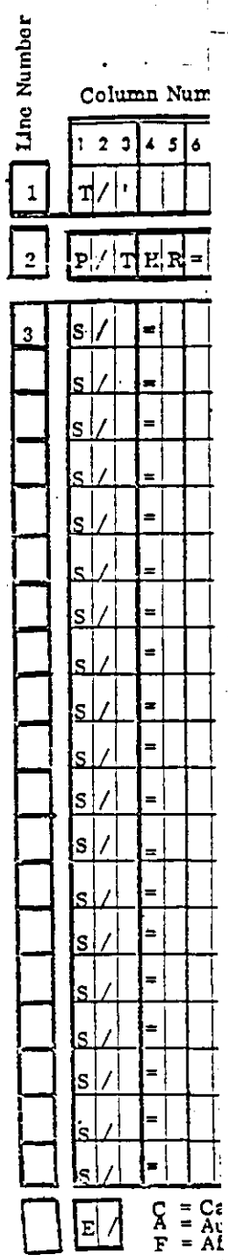
IRSSCI AUTHORITY LIST AND REFERENCE COUNT

JOURNAL LIST

G GERONT
G IG MED PREV
G VENETO SCI MED
GANN
GASTROENTEROLOGIA
GASTROENTEROLOGY
GAZ MED FRANCE
GAZZ SANIT
GEN PRACT
GENEESK GIDS
GENETICS
GEORGETOWN MED BULL
GERIATRICS
GRACE HOSP BULL
GROWTH
GUT
GUY HOSP REP
HAREFUAH
HEALTH
HEALTH PHYS
HEBREW MED J
HEFTE UNFALLHEILK
HELV CHIR ACTA
HENRY FORD HOSP MED BULL
HINYOKIKA KIYO, ACTA UROL JAP
HIROSHIMA J MED SCI
HOSP MANAGE
HOSP PROGR
HOSPITAL
ILLINOIS MED J
INDIAN J MED RES
INDIAN J PHYSIOL PHARMACOL
INDIAN MED J
INDUSTR MED SURG
INT AIR WAT POLL
INT ARCH GEWERBEPATH
INT J NEUROPHARMACOL
INT J SEE PSYCHIAT
INT REV EXP PATH
IRISH J MED SCI
J ABNORM PSYCHOL
J AIR POLLUT CONTR ASS
J AMER CHEM SOC
J AMER COLL HEALTH ASS
J AMER DENT ASS
J AMER DIET ASS
J AMER GERIAT SOC
J AMER VET MED ASS

APPENDIX I

Search Request Form



SEARCH REQUEST FORM

DATE ____________

Line Number

Column Number

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77

1 T / '

2 P / T H R =

3 S / =

S / =

S / =

S / =

S / =

S / =

S / =

S / =

S / =

S / =

S / =

S / =

S / =

S / =

S / =

S / =

S / =

S / =

S / =

E /

C = Category
A = Author
F = Affiliation

J = Journal
Y = Year
D = Descriptor

All Classes . . . . . (W/W/W/W)
Class 1 only . . . . . (W)
Class 2 only . . . . . (/W)
Class 3 only . . . . . (//W)
W = Weight Factor and can be from +9 to -9. Absence of sign (+) assumes plus.

LG 2018290

SEARCH REQUEST FORM

Line Number

Column Number

DATE

```
1  T/'JONES S QUESTIOAD 3 MAY 5 1967'
2  P/TIIR=11
3  S/C=7(9/0/0/0)
4  S/D=BIRTH WEIGHT DECREASE MATERNAL SMOKING ASSOCIATION(5/5/0/0)
5  S/D=BIRTH WEIGHT DECREASG(2/2/0/0)
6  S/D=PREMATURITY(2/2/0/0)
7  S/D=ABORTION(1/1/0/0)
8  S/D=BIRTH WEIGRT(1/1/0/0)
9  E/
```

A search for documents on prematurity and low birth weight in relation to smoking, using the category number 7 instead of smoking terms:

C = Category
A = Author
F = Affiliation

J = Journal
Y = Year
D = Descriptor

All Classes . . . . . (W/W/W/W)
Class 1 only . . . . . (W)
Class 2 only . . . . . (/W)
Class 3 only . . . . . (//W)

W = Weight Factor and can be from +9 to -9. Absence of sign (+) assumes plus.

LG 2018291

SEARCH REQUEST FORM

DATE

Line Number / Column Number

Line	Columns 1–77
1	T/'JONES SQUESTION 8 MAY 5 1967'
2	P/THR=3
3	S/A='WYNDER, EL'(2/2/0/0)
4	S/C=9(-9/0/0/0)
5	S/D=SKIN PAINTING(1/1/1/1)
6	S/D=SKIN PAINTING A(1/1/1/1)
7	E/

A search for documents on skin painting by Wynder as either a primary or secondary author, but excluding his editorial comments (category 9):

C = Category
A = Author
F = Affiliation

J = Journal
Y = Year
D = Descriptor

All Classes . . . . . (W/W/W/W)
Class 1 only . . . . . (W)
Class 2 only . . . . . (/W)
Class 3 only . . . . . (//W)
W = Weight Factor and can be from +9 to -9. Absence of sign (+) assumes plus.

LG 2018292

SEARCH REQUEST FORM

DATE ____

Line Number	Column Number
1	T/'JONES S QUESTION 6 MAY 5 1967'
2	P/THR=13
3	S/A='WYNDER, EL'(2/0/0/0)
4	S/A='HAMMOND, EC'(2/0/0/0)
5	S/D=TRACHEA CANCER(2/2/2/2)
6	S/D=GRANTOR AMER CANCER SOC(0/0/0/9)
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
7	E/

A search for documents on trachea cancer by either Wynder or Hammond, but only if they were primary authors supported by the American Cancer Society:

C = Category
A = Author
F = Affiliation

J = Journal
Y = Year
D = Descriptor

All Classes . . . . . (W/W/W/W)
Class 1 only . . . . . (W)
Class 2 only . . . . . (/W)
Class 3 only . . . . . (//W)
W = Weight Factor and can be from +9 to -9. Absence of sign (+) assumes plus.

LG 2018293

SEARCH REQUEST FORM

Column Number | DATE

Line Number	Entry
1	T/'JONES 5 QUESTION 4 MAY 5 1967'
2	P/TIIR=8
3	S/Y=1892(-9/0/0/0)
4	S/D=SCROTUM CANCER(2/2/2/2)
5	S/D=SCROTUM CANCER MORBIDITY
6	S/D=SCROTUM CANCER MORTALITY
7	S/D=ENGLISH LANGUAGE(0/0/0/6)
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
8	E/

A search for documents in the English language on scrotum cancer, excluding those known to be in the system which were published in 1892:

C = Category
A = Author
F = Affiliation

J = Journal
Y = Year
D = Descriptor

All Classes . . . . . (W/W/W/W)
Class 1 only . . . . . (W)
Class 2 only . . . . . (/W)
Class 3 only . . . . . (//W)

W = Weight Factor and can be from +9 to -9. Absence of sign (+) assumes plus.

SEARCH REQUEST FORM

DATE ____

Line Number	Column Number
1	T/'JONES 5 QUESTION 2 MAY 5 1967'
2	P/THR=9
3	S/J=BIOCEM J(3/0/0/0)
4	S/J=J BIOL CHEM(3/0/0/0)
5	S/D=NICOTINE METABOLISM(2/2/0/0)
6	S/D=NICOTINE METABOLISM A(2/2/0/0)
7	S/Y=1964(4/0/0/0)
8	S/Y=1965(4/0/0/0)
9	S/Y=1966(4/0/0/0)
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
10	E/

A search for articles in either the Biochemical Journal or the Journal of Biochemistry on nicotine metabolism published in 1964-66:

C = Category
A = Author
F = Affiliation

J = Journal
Y = Year
D = Descriptor

All Classes . . . . . (W/W/W/W)
Class 1 only . . . . . (W)
Class 2 only . . . . . (/W)
Class 3 only . . . . . (//W)

W = Weight Factor and can be from +9 to -9. Absence of sign (+) assumes plus.

SEARCH REQUEST FORM

DATE ____________

Line Number	Column Number (1–77)
1	T/'JONES S QUESTION S MAY S 1967'
2	P/THR=29
3	S/C=7(5/0/0/0)
4	S/D=MALE DATA(5/0/0/0)
5	S/D=ONE(-9/0/0/0)
6	S/D=TEN(-9/0/0/0)
7	S/D=CARBON MONOXIDE POISONING(3/3/0/0)
8	S/D=TOBACCO FERMENTATION(3/3/0/0)
9	S/D=TOBACCO INDUSTRY WORKERS(3/0/0/3/
10	S/D=BULGARIA RESIDENCE(0/0/0/7)
11	S/D=BULGARIAN LANGUAGE(0/0/0/-9)
12	S/D=ENGLISH LANGUAGE(0/0/0/7)
13	S/D=RUSSIAN LANGUAGE(0/0/0/7)
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	S/ =
	R/ =
14	E/

A search for major articles on carbon monoxide poisoning in male tobacco fermentation plant workers, written by Bulgarian authors but accepting only Russian and English as the languages of publication:

C = Category
A = Author
F = Affiliation

J = Journal
Y = Year
D = Descriptor

All Classes . . . . . (W/W/W/W)
Class 1 only . . . . . (W)
Class 2 only . . . . . (/W)
Class 3 only . . . . . (//W)
W = Weight Factor and can be from +9 to -9. Absence of sign (+) assumes plus.